



WATER RESOURCES RESEARCH GRANT PROPOSAL

Project ID: 2006AL50B

Title: Evaluating Bioretention Nutrient Removal in a Rain Garden With and Internal Water Storage (IWS) Layer

Project Type: Research

Start Date: 03/01/2006

End Date: 02/28/2007

Congressional District: Third

Focus Categories: Non Point Pollution; Water Quality; Nutrients

Keywords: Bioretention, Stormwater management, Non Point Source Pollution

Principal Investigators: Dougherty, Mark P.; LeBleu, Charlene M (Auburn University)

Federal Funds: \$17,444

Non-Federal Matching Funds: \$35,254

Abstract: A rain garden is a man-made depression in the ground that is used as a landscape tool to improve water quality. The rain garden forms a bioretention area by collecting runoff, storing it, and permitting it to be filtered and slowly absorbed by the soil. The bioretention concept is based on the hydrologic function of forest habitat. A nutrient removal or filtering process takes place as the water comes in contact with the soil and the roots of the trees, shrubs and vegetation. The first flush of rain water is ponded in the depression of the rain garden, and contains the highest concentration of materials washed off impervious surfaces. Typically, organic matter is blended into a sandy soil with about 30% of native top soil. The planting mixture provides a source of water and nutrients for the plants to sustain growth while clay particles adsorb heavy metals, hydrocarbons and other pollutants.

The use of these innovative techniques have been successfully used in the northeast portion of the United States. In the southeast, North Carolina has led the way for implementation of stormwater infiltration management practices. Various groups in Alabama have indicated an interest in installing

some of these practices, but hesitate partly due to lack of research evaluating and demonstrating these practices locally. The use of bioretention devices is poised to expand because their use appears to improve water quality, and they can be designed to be aesthetically pleasing. This project will construct, monitor, and compare two different bioretention areas.

[U.S. Department of the Interior](#), [U.S. Geological Survey](#)

URL: <http://water.usgs.gov/wrri/06grants/2006AL50B.html>

Maintained by: [John Scheffer](#)

Last Updated: Tuesday, September 05, 2006

[Privacy Statement](#) // [Disclaimer](#) // [Accessibility](#)